

ABSTRACT

A steel/aluminum welded structure comprises a hot-dip Al-coated steel sheet 1 spot welded with an aluminum or aluminum alloy sheet 2. The steel sheet 1 is coated with a coating layer 4 containing, by mass, 3-12% of Si and 0.5-5% of Fe. An area ratio of an Al-Fe binary alloy layer, formed at the joint boundary, is controlled to 90% or less. An unalloyed region 9 exists between an Al-Fe-Si ternary alloy layer 6 at an interface of a steel substrate 5 with the coating layer 4 interface and the Al-Fe binary alloy layer at the joint boundary. A steel substrate 5 preferably contains 0.002-0.020% of N for formation of a N-enriched surface layer in contact with the coating layer 4. The N-enriched layer impedes propagation of the brittle Al-Fe binary alloy layer to the whole of the joint boundary and raises joint strength of the steel/aluminum welded structure.